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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/593,884

09/21/2006

Daisaku Matsunaga

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Nields, Lemack & Frame, LLC

176 E. Main Street

Suite #5

Westborough, MA 01581

EXAMINER

RAMIREZ, ARMANDO P

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

04/03/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/593,884	Applicant(s) MATSUNAGA ET AL.	
	Examiner ARMANDO P. RAMIREZ	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 5-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09/21/2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/18/2006, 05/18/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. **Claims 5-21 are withdrawn** from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected inventions, there being no allowable generic or linking claim.

Applicant timely traversed the restriction (election) requirement in the reply filed on 01/30/2009.

2. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

3. **Applicant's election with traverse of Group II, Claims 2-4 in the reply filed on 01/30/2009 is acknowledged.**

4. **The traversal is on the ground(s)** that Davis-Gillian (US 5,861,931) does not disclose the invention claimed in the present claim 1. Furthermore, applicant disputes that Davis-Gillian teaches the combined use of a thin film layer of the polymer having photoactive groups treated by light for orientation and a birefringent layer on the thin film layer. Therefore, Gillian (US 5,861,931) does not teach the special technical features of the present claims and the special technical features are common through all claims of the present application.

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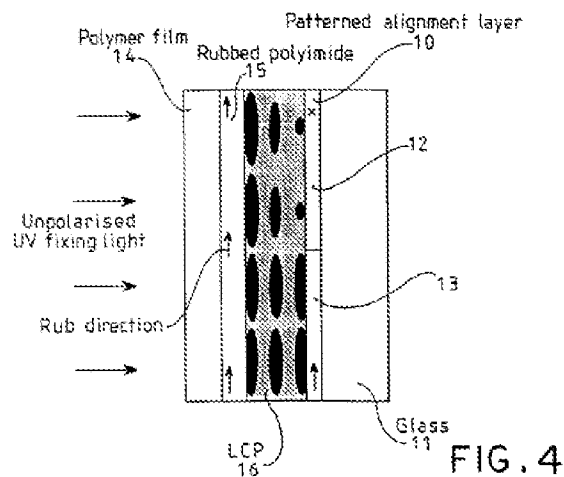
5. **This is not found persuasive** because Davis-Gillian does in fact teach “a thin film layer of a polymer having photoactive groups (*Col. 4, lines 27-28*) treated by light for orientation (*Col. 3, lines 25-51*) and a birefringent layer on the thin film layer (*Figure 4, item 15, see at least Col. 3, lines 52-63*).”

Davis-Gillian states that, “By adding anisotropic dye molecules to the polarization rotators described hereinbefore, it is possible to produce a combined polarization micromanipulator and such a device is illustrated in FIG. 5. In particular, the micromanipulator **20** of FIG. 5 differs from that of FIG. 3 by performing patterned rotation and polarization of incoming unpolarized light. The micromanipulator **20** of FIG. 5 may be made by the method illustrated in FIG. 4 merely by adding the anisotropic dye molecules to the LCP 16 before sandwiching between the alignment layers **10** and **15**.” (*Col. 4, lines 20-29*). The LCP as described by Davis-Gillian is a liquid crystal polymer (*Col. 3, lines 54-55*).

The photoactive groups as claimed by the applicant are considered to be the anisotropic dye molecules as taught by Davis-Gillian (*Col. 4, lines 20-29, vide supra*).

In addition, the reference also teaches photo-orientation of polymers see at least *Col. 3, lines 25 through 51*. More specifically, Davis-Gillian teaches the photo-orientation of layer 16 (*LCP, Figure 4, vide infra, and also see at least Col. 5, lines 1-11*). Therefore, Davis-Gillian teaches the technical features (*vide supra*) as claimed by the applicant in Claim 1 of the instant application, thereby restriction requirement is proper.

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Applicant argues that Davis-Gallian does not teach the photoactive groups described in the specification of the instant application, however, this subject matter is not claimed by the applicant in Claim 1, and as such is non-statutory subject matter.

Furthermore, applicant admits on the record “That is, according to the present invention, the following inventions are provided:” (see Pages 9-12, and specifically Page 9).

The requirement is still deemed proper and is therefore made FINAL.

Priority

6. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

7. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered. **Applicant did not include the Non-Patent Document 1**, as listed in the "BACKGROUND ART" of the specification of the instant application in any of the IDS forms.

Drawings

8. The drawings are objected to under 37 CFR 1.83(a) because they fail to teach what each bar is referring to as described in the specification and with respect to the claims. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after

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the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

9. The disclosure is objected to because of the following informalities: The "DISCLOSURE OF THE INVENTION," contains significant discussions of prior art documents, which should be included in the "BACKGROUND ART" section of the specification.

Appropriate correction is required.

10. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

11. The use of the trademark E-8 (and additional examples therein) has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

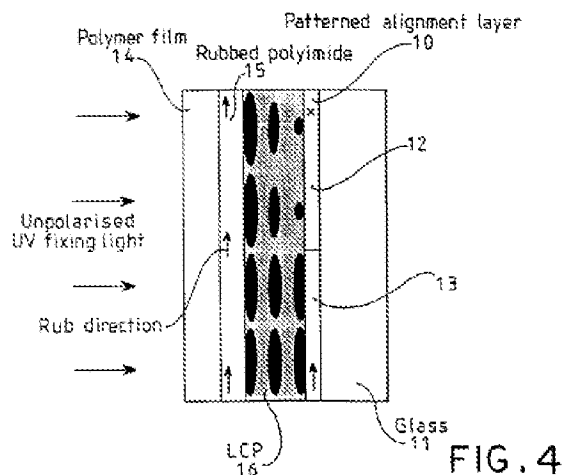
Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. **Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Davis-Gillian (US 5,861,931).**

Davis-Gillian teaches with respect to Claim 1 (Original), the claimed retardation element characterized in that a liquid crystalline or non liquid crystalline polymer (*Col. 3, lines 54-55*) thin film layer (*see at least Figure 4, LCP 16, vide infra*) having photoactive groups (*Col. 4, lines 27-28*), subjected to photo orientation treatment (*LCP, Figure 4, see at least Col. 5, lines 1-11*) is formed on a substrate (*Figure 4, glass 11*), and a birefringence layer (*Figure 4, item 15, see at least Col. 3, lines 52-63*) is formed so as to contact (*see Figure 4*) with said polymer thin film layer, but does not specifically teach the claimed oriented in a micropattern form.



With respect to the claimed oriented micropattern form, Davis-Gillian teaches a process of patterning the polymer film (*see at least Col. 3, lines 25 through 51 and additional examples therein*). Hence, since there is recognition of this feature in the art, the claimed oriented micropattern form is a result-effective variable that is subject to routine experimentation for the purpose of providing the desired birefringence to the invention.

Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to have manufactured the invention of Davis-Gillian with an oriented micropattern form as the claimed by the applicant in the instant claim, in order to modify the birefringent properties of the optical film and ultimately modify the viewing angle of the display.

Although Davis-Gillian does not appear to specifically teach the claimed oriented micropattern form, product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior art product was made by different process.” *In re Thorpe*, 227 USPQ 964,966. Once the

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examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 8802, 218 USPQ 289, 292 (Fed. Cir. 1983), MPEP 2113.

The photoactive groups as claimed by the applicant are considered to be the anisotropic dye molecules as taught by Davis-Gillian (*Col. 4, lines 20-29, vide supra*).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis-Gillian (US 5,861,931) in view of Ichimura (US 6,001,277).

With respect to Claim 2, Davis-Gillian teaches the invention set forth above, but does not specifically teach the claimed retardation element, wherein the photoactive group is at least one group selected from a group consisting of non-aromatic N=N, non-aromatic C=C and non-aromatic C=N. Ichimura, however, teaches the claimed photoactive group is at least one group

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selected from a group consisting of non-aromatic N=N, non-aromatic C=C and non-aromatic C=N (*see at least Formulas 1 through 28, Col. 14 through 25*).

Davis-Gillian and Ichimura are analogous art because they are from the same field of endeavor, such as optical films, more specifically alignment films. At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Davis-Gillian and Ichimura before him or her, to modify the film of Davis-Gillian in order to contain the azobenzene based polymers as described by Ichimura. The motivation for doing so would be as described by Ichimura: "An object of the present invention is to provide a liquid-crystal alignment film that can cause liquid-crystal alignment without the need for the rubbing, and is a liquid-crystal alignment film that can accomplish pretilt angles as occasion demands and can also constitute a wide visual angle liquid-crystal display device" (*Col. 3, lines 8-13*). Therefore, it would have been obvious to combine Davis-Gillian and Ichimura to obtain the invention as specified in the instant claims.

With respect to Claim 3, Davis-Gillian and Ichimura teach the invention set forth above and further teach the claimed retardation element, wherein the liquid crystalline polymer thin film layer is a thin film layer consisting of a polyamide resin, a polyimide resin, a polyester resin, a polyurethane resin, or a polyvinyl cinnamate resin (*see at least Abstract, lines 3-9, and additional examples in the specification*).

At the time of the invention it would have been obvious to one of ordinary skill in the art to have attached the photoactive groups to a polymer such as polyimide and/or polyester (exemplary) in order to increase durability of the optical film and prevent the photoactive groups

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from leaching into the additional layers that compose the display, ultimately preventing environmental contamination and user exposure.

Allowable Subject Matter

16. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

17. **Claim 4 is objected** to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Davis-Gillian and Ichimura teach the invention set forth above, but do not specifically teach the claimed retardation element, wherein the non liquid crystalline polymer thin film layer is a thin film layer consisting of polymethacryloyl(acryloyl)oxymethoxycarbonyloxyethyl-azobenzene. Ichimura teaches numerous azobenzene polymers; however, the reference fails to specifically teach an azobenzene that is not disubstituted with two benzene rings, and more specifically the precise carbon network and the combination of functionalities as claimed by the applicant in the following molecular structure:



are not present in the prior art.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Berneth (US 2003/0096065 A1), teaches optical films in which azobenzene compounds are employed as photo addressable polymer components.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ARMANDO P. RAMIREZ whose telephone number is (571)270-7083. The examiner can normally be reached on Mon - Thur (4/5/9).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on (571)272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit 1794

/A. P. R./

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